

WI EPHT Program's Environmental Public Health Indicators Project

Presented:

Environmental Public Health Tracking Workshop

Enhancing Future Program Activities II

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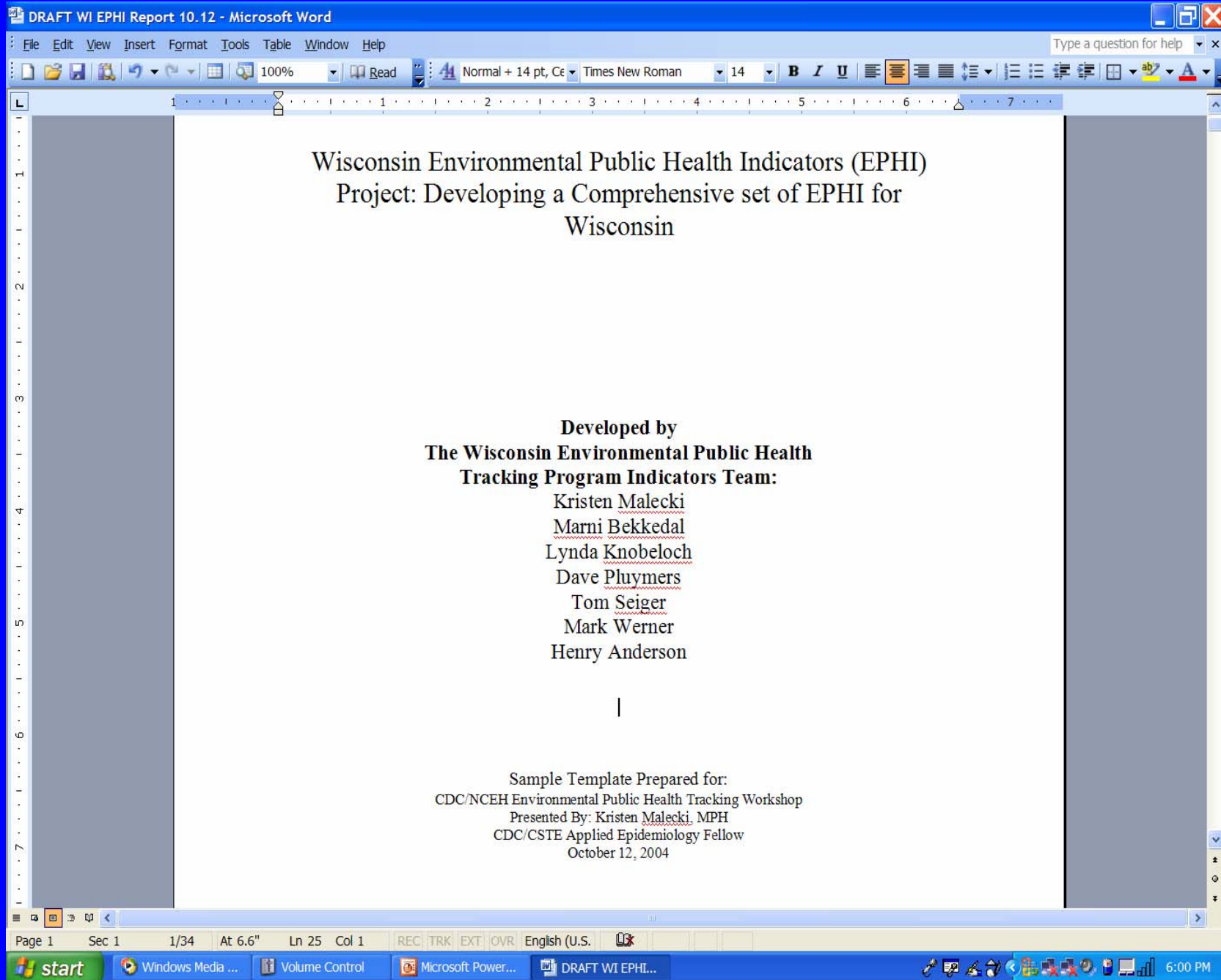
Acknowledgements

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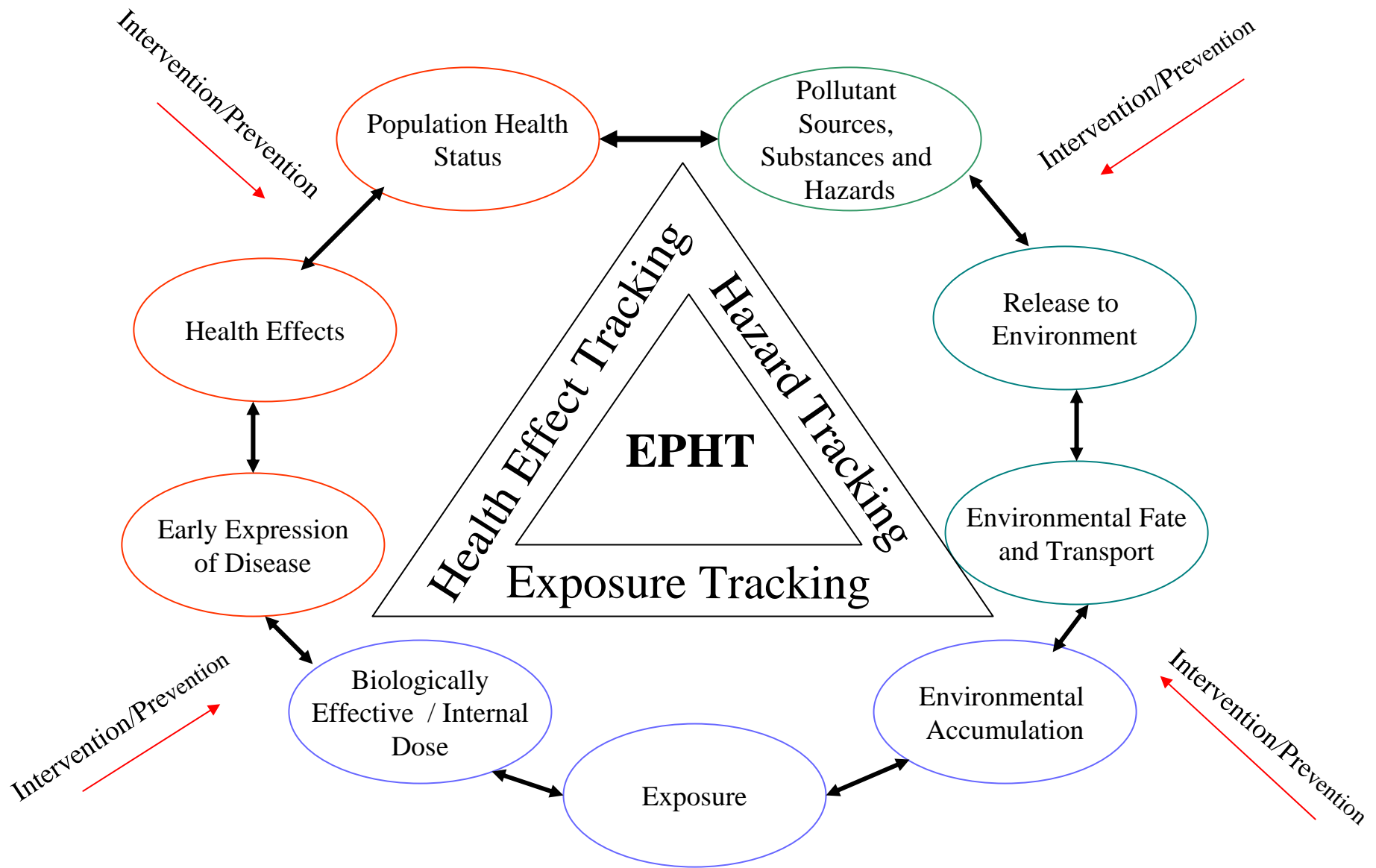


Today's Discussion

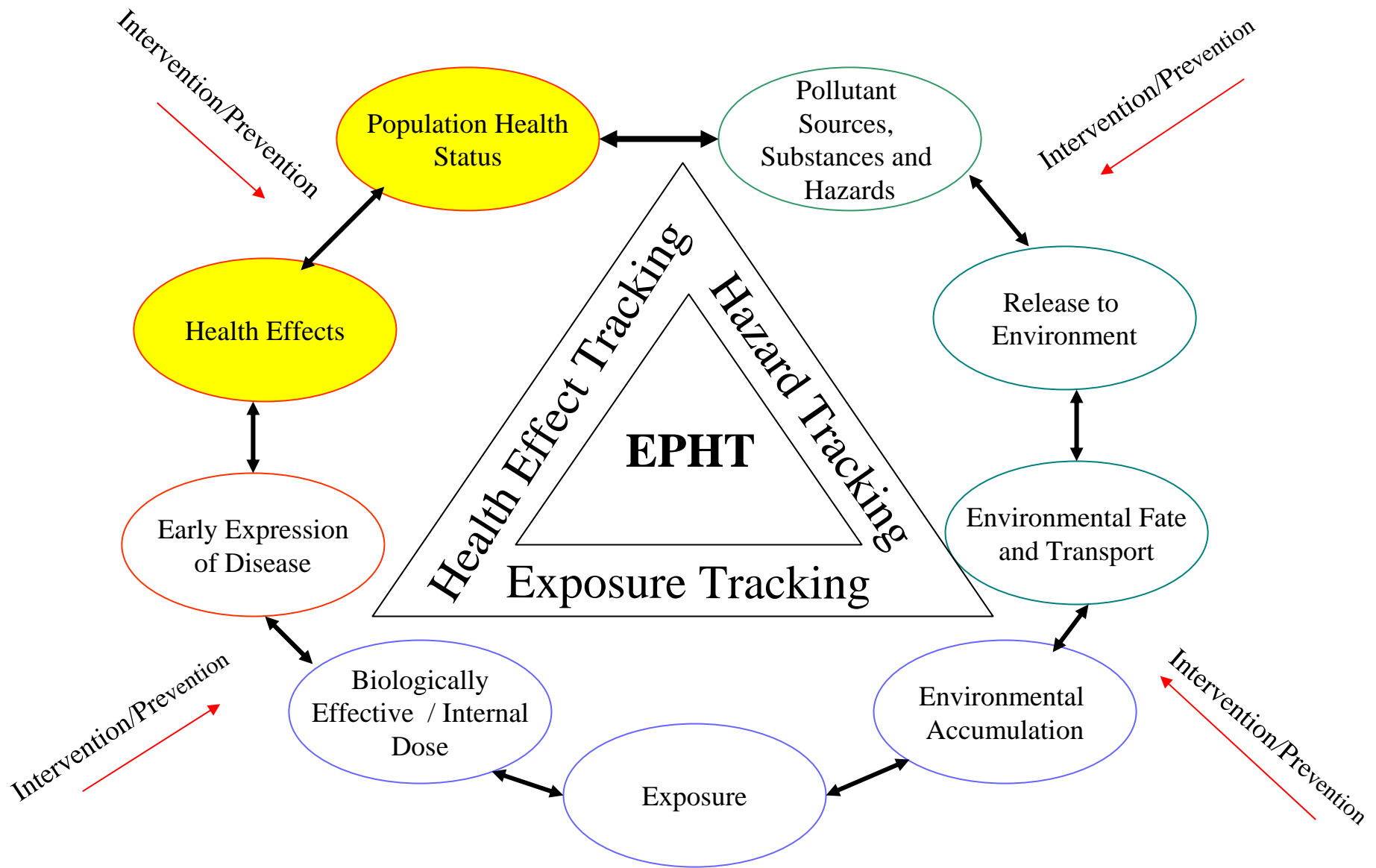
- Overview of the WI EPHI project
 - definitions, framework and process for indicator development
- Update:
 - where we are and where we are going- a few examples
- Discussion:
 - Lessons learned and future role of WI EPHI development

WI EPHT Program Goals for EPHI

- Develop a set of useful EPHI to build the state's environmental health surveillance capacity and enhance the ability to examine environmental health relationships.
- Identify priority areas in which data and measures are limited or lacking.
- Provide a mechanism to evaluate and assess progress in current priority environmental health program areas for the state and *Healthiest Wisconsin 2010* goals.
- To evaluate the utility of the current CDC/CSTE EPHI framework/guidance document for developing state level EPHI that meet the above goals and objectives.

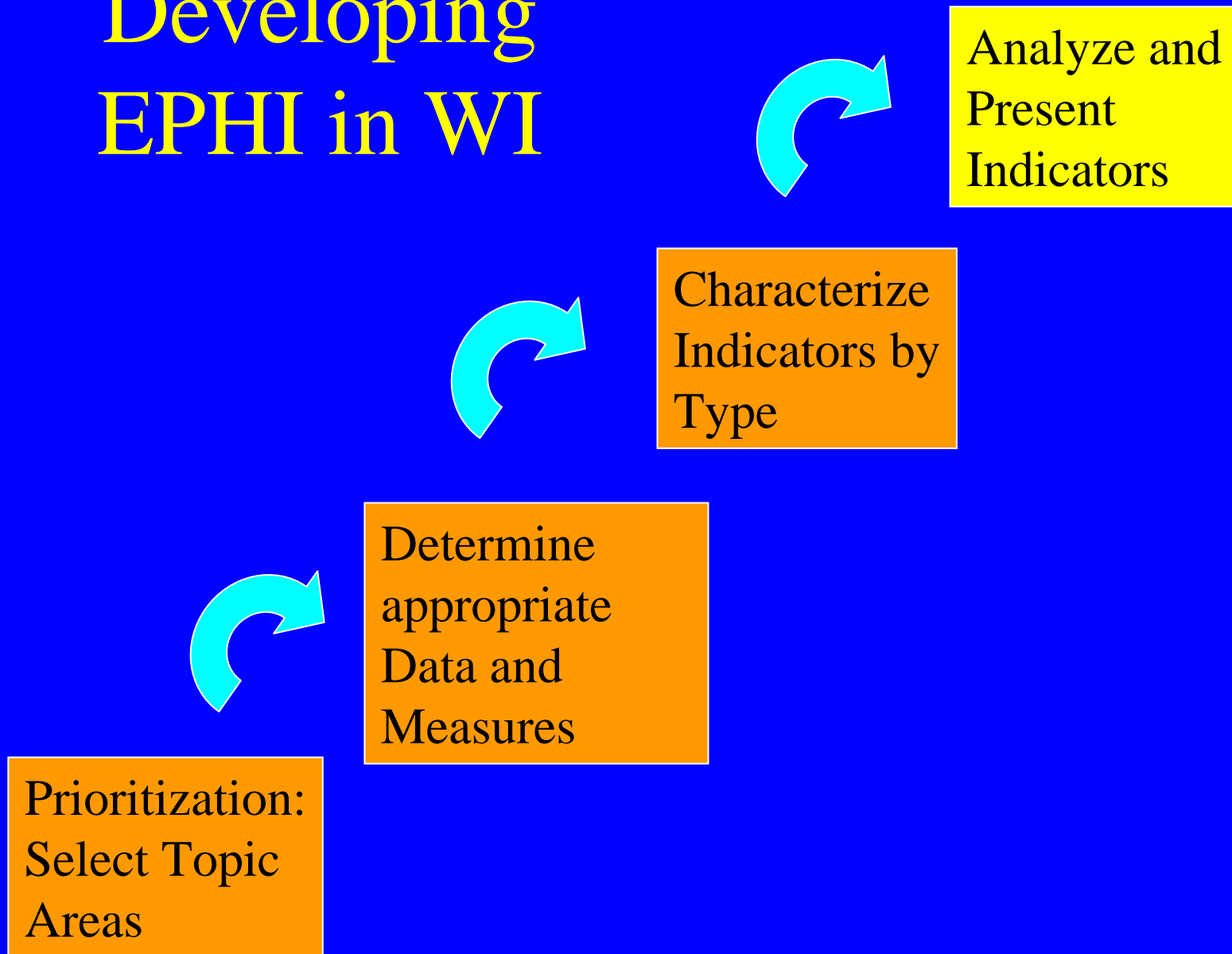


Source: Burke et. al, APHA, 1997.



Adapted from: Burke et. al, APHA, 1997.

Developing EPHI in WI



WI EPHI Prioritization, Selection and Evaluation Process

- External
 - Stakeholder Input
 - WI Environmental Health Steering Committee
 - Partner agencies(WI DNR, WI DATCP)
 - CDC/CSTE Guidelines
- Internal
 - Healthiest Wisconsin 2010(Healthy People 2010)
 - EPHT Program Objectives
 - WI BOEH Program Objectives

CDC/CSTE Attributes of An Ideal EPHI	WI Steering Committee Evaluation Criterion Measures
Measurable	<ul style="list-style-type: none"> •Is the EPHI measurable and accurate? •Is there a data set available for EPHI development?
Trackable over time	<ul style="list-style-type: none"> •Does the EPHI establish a baseline? •Can the EPHI be monitored over time?
Based on demonstrated links between environment and health	<ul style="list-style-type: none"> •Is the EPHI of public health importance? •Is the indicator sensitive to changes in the environment that affect human health? •Is there a direct and measurable link between this EPHI and a public health issue? •Is there a credible and scientific basis for this EPHI?
Informative to public and to responsible agencies	<ul style="list-style-type: none"> •Does the EPHI contribute to the planning and management process? •Does the EPHI reflect progress and gaps in process/data? •Is it cost effective to track this EPHI? •Is it feasible?
Tied to Public Health Objectives	<ul style="list-style-type: none"> •Does the EPHI meet a Healthiest Wisconsin 2010 Objective?
Action-oriented	<ul style="list-style-type: none"> •Can the EPHI be incorporated into public health interventions or environmental regulations? •Will tracking this EPHI help prevent disease and death?
Incorporated in clear-case definitions	

Topic Areas for EPHI Development in WI

- Hazards/Exposures
 - Air, Ambient(Outdoor)
 - Air, Ambient (Indoor)*
 - Radon
 - Persistent Bio-accumulative
 - Water Quality, Ambient
 - Water Quality, Drinking
 - Pesticides*
 - Lead
- Health Effects
 - Asthma
 - Cardiovascular Disease
 - Respiratory Disease
 - Cancer
 - Neurological*
 - Cancer-Adult
 - Cancer-Children
 - Children's Health

* Key Data Gaps

WI Indicator Topic Areas and Related Measures

- Asthma
 - Asthma burden(prevalence, hospitalizations, emergency department visits, mortality)
 - Asthma and ETS exposure in homes for middle school children
- Air, Ambient(outdoor)
 - AQI, Criteria Air Pollutants
 - Related Measures: Asthma, CVD, Respiratory Disease
- Air, Ambient(indoor)
 - CO, ETS

WI Indicator Types

- Hazard
- Exposure
- Health Effect
- Intervention/Prevention
- Integrated- Combined/ “Hybrid” (eg asthma and ETS among middle school children)
- Other(population demographics, land use)

Integrated Indicators(1)

- **Level 1-** Individual hazard or health outcome data presented by person, place or time. For hazard data, no information on potential toxicity is assessed, similarly for health outcome data no information on the geographic or temporal distribution of disease in relation to chemical contaminants is presented.

WI Examples:

- Annual trends in age-adjusted asthma hospitalizations
- Acres of land used for corn production per county.
- TRI release data by county

Integrated Indicators(2)

- Level 2- Combined/integrated measures linking two different types of hazard/exposure or health outcome indicators but are limited for estimating potential population risk because they lack good estimates of population exposure and/or dose. Additional level two indicators may present hazard data in combination with toxicity data but do not provide an estimate of potential population risk.
- WI Examples:
 - Total pounds of carcinogens released to drinking water
 - Percent of total population living in counties with excess percent of corn crops as a surrogate for pesticide exposure
 - Percent of population living in areas where air concentrations or drinking water contaminants exceed health based standards

Integrated Measures(3)

- Combined hazard, exposure and health outcome measures or integrated risk related measures that identify potential population exposure levels (eg some level of exposure and dose) and population risk estimates.

WI Examples:

- School sitings and cancer risk scores in Milwaukee County
- Cancer risk scores for all HAPS, Milwaukee County

Asthma Burden

Type: Health Effect

Integration: Level 1-2

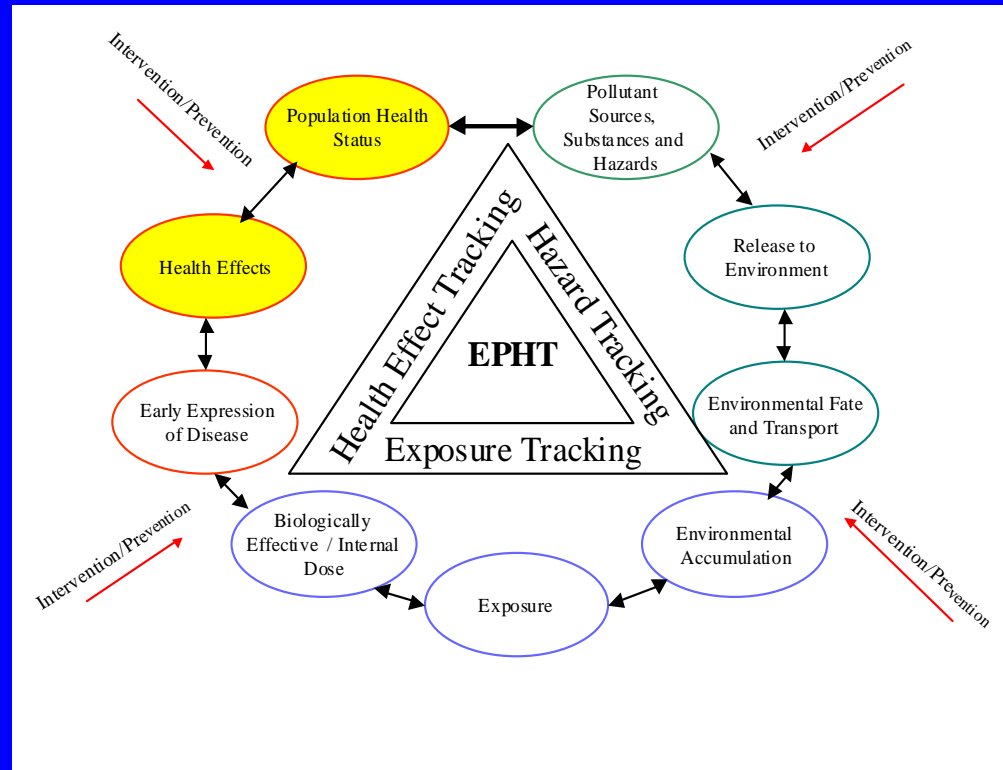
Data Availability: Core

Indicator Measures:

- Asthma Prevalence
- Emergency Department
- Hospitalizations
- Mortality

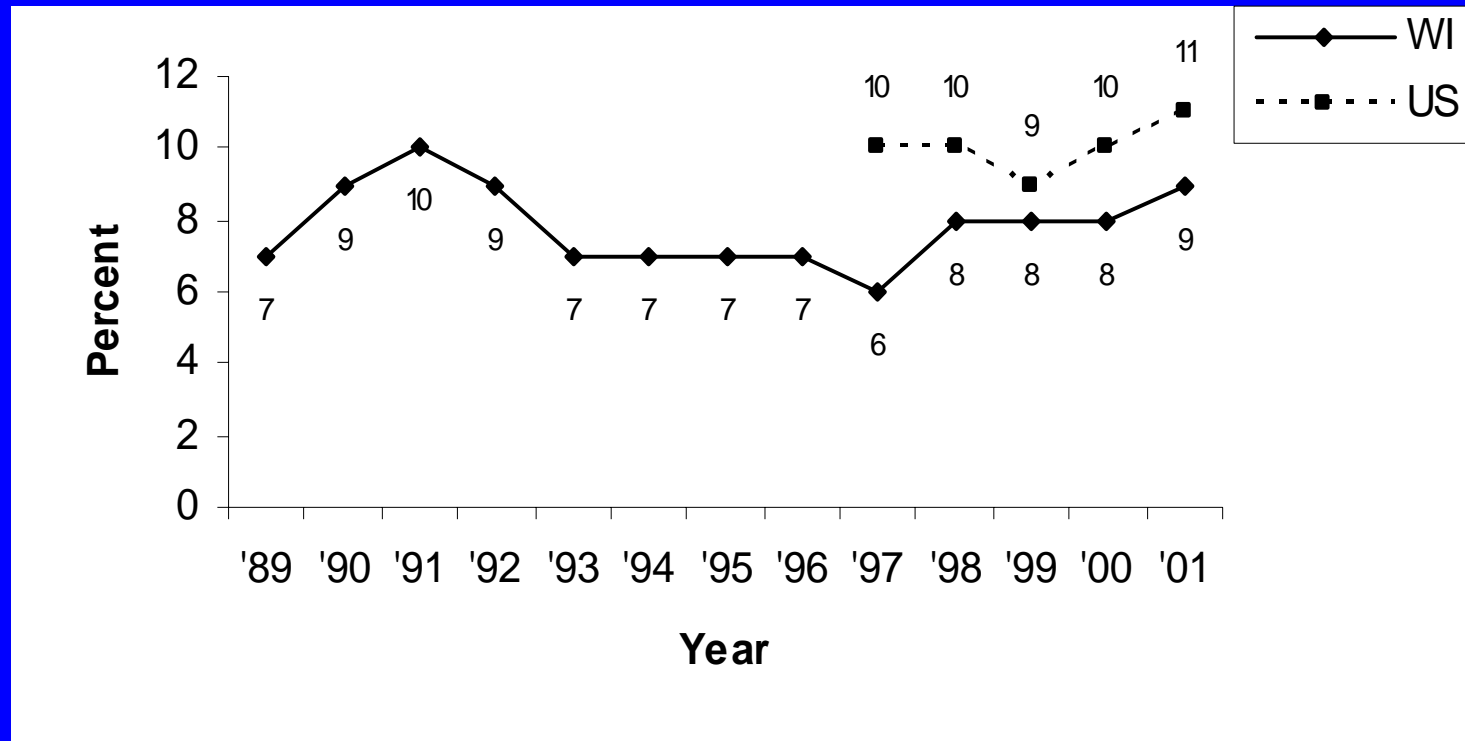
Related Measures:

- Indoor Air Quality
- Outdoor Air Quality



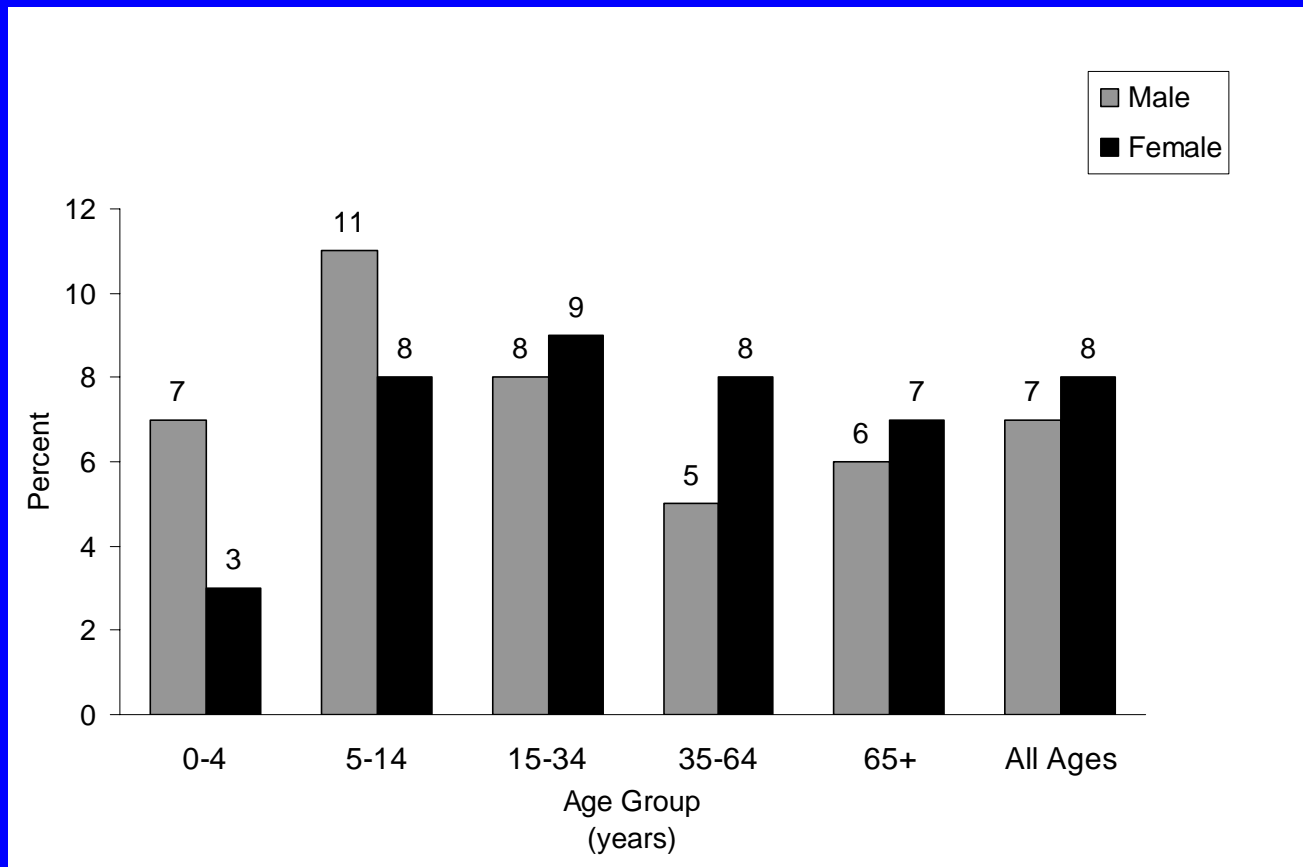
Adapted from: Burke et. al, APHA, 1997.

Lifetime Asthma Prevalence, Wisconsin and the United States, 1989-2001



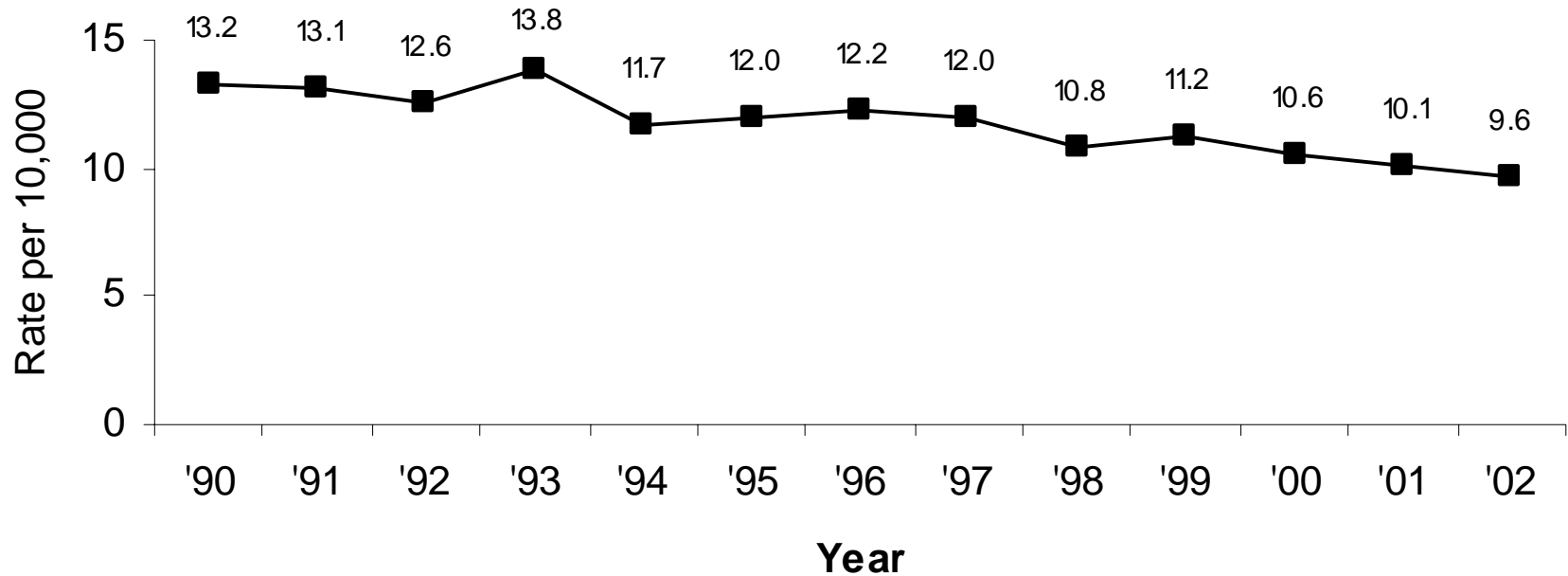
Data Sources: 1989-2001 Family Health Survey, Bureau of Health Information,
Division of Health Care Financing, Wisconsin Department of Health and Family Services
1997-2001 National Health Interview Survey

Lifetime Asthma Prevalence by Age and Sex, Wisconsin, 1992-2000.



Data Source: 1992-2000 Family Health Survey, Bureau of Health Information,
Division of Health Care Financing, Wisconsin Department of Health and Family Services

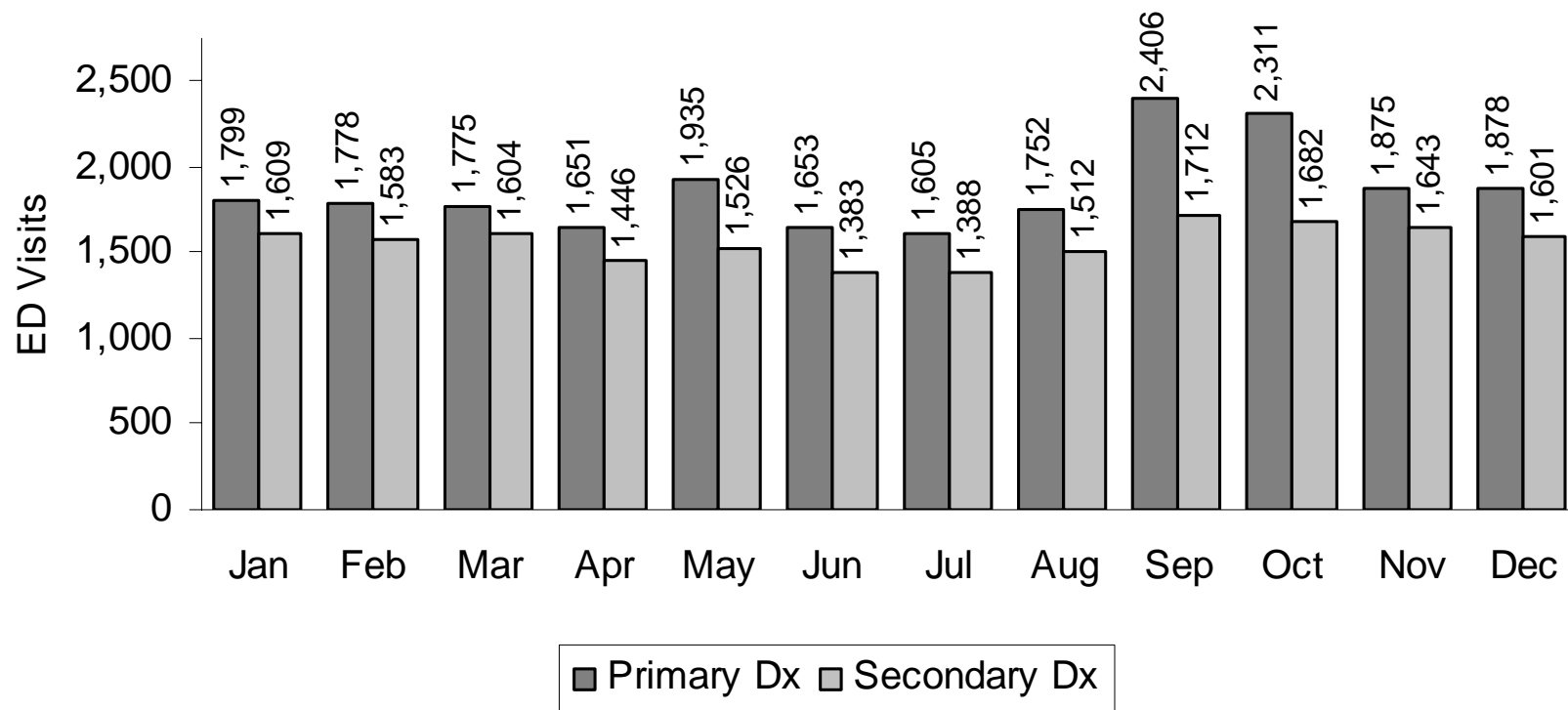
Age-Adjusted Asthma Inpatient Hospitalization Rates* per 10,000, Wisconsin Residents, 1990-2002.



*Asthma listed as the principal diagnosis (ICD-9-CM codes 493.00 - 493.92)

Data Source: 1990-2002 Inpatient Hospital Discharge Data, Bureau of Health Information, Division of Health Care Financing, Wisconsin Department of Health and Family Services

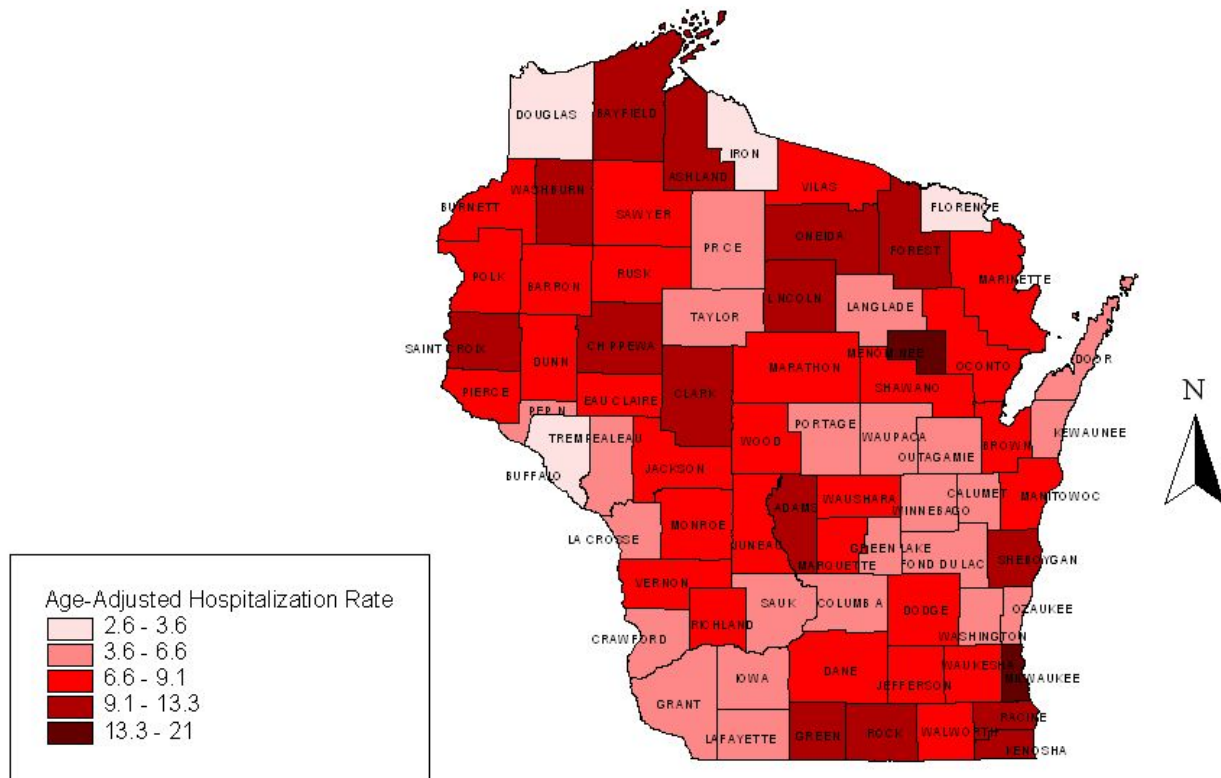
Asthma as the Principal or Secondary Hospital Emergency Department Visits* by Month, Wisconsin Residents, 2002.



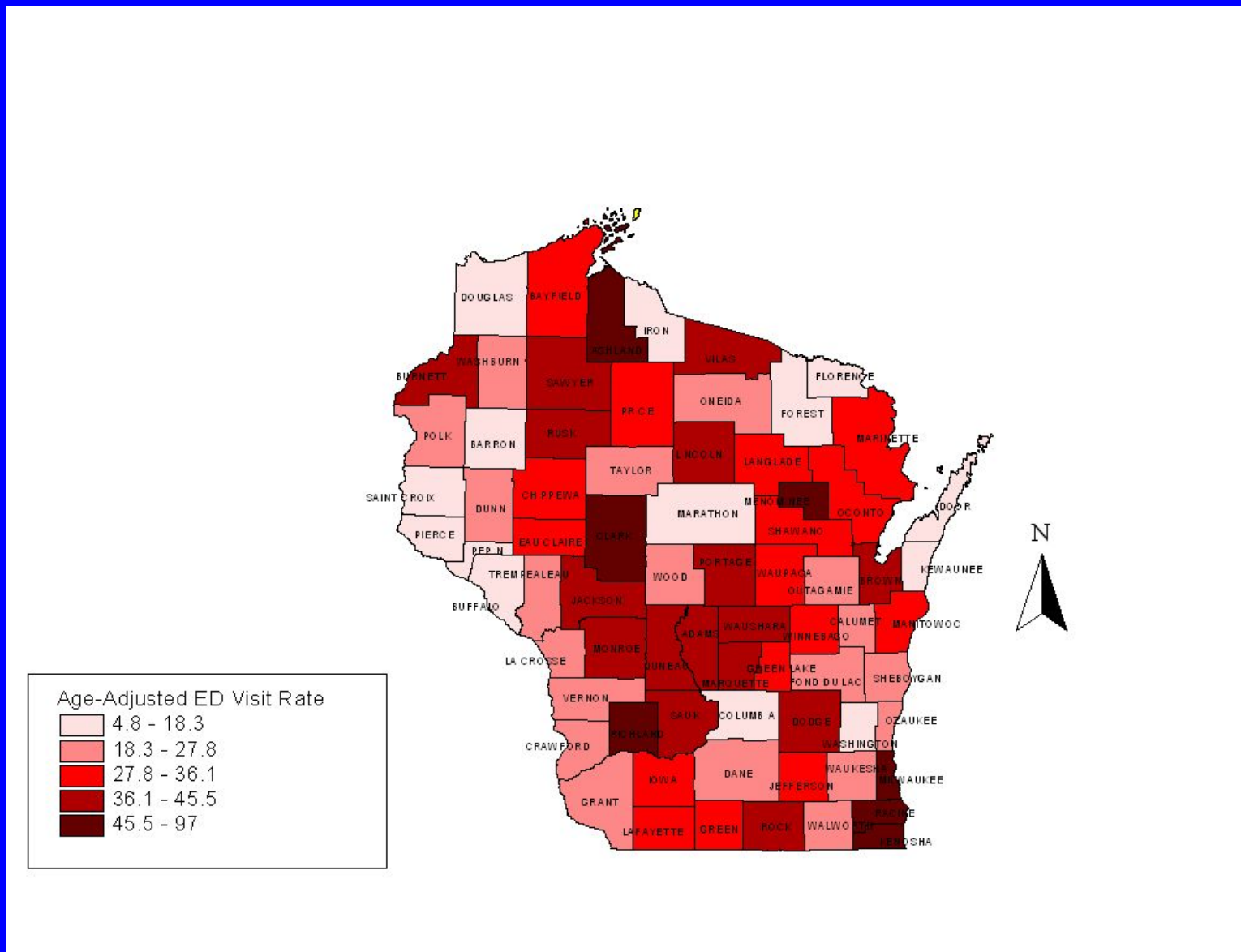
*Asthma listed as either the principal or secondary diagnosis (ICD-9-CM codes 493.00 - 493.92)

Data Source: 2002 Emergency Department Visit Data, Bureau of Health Information,
Division of Health Care Financing, Wisconsin Department of Health and Family Services

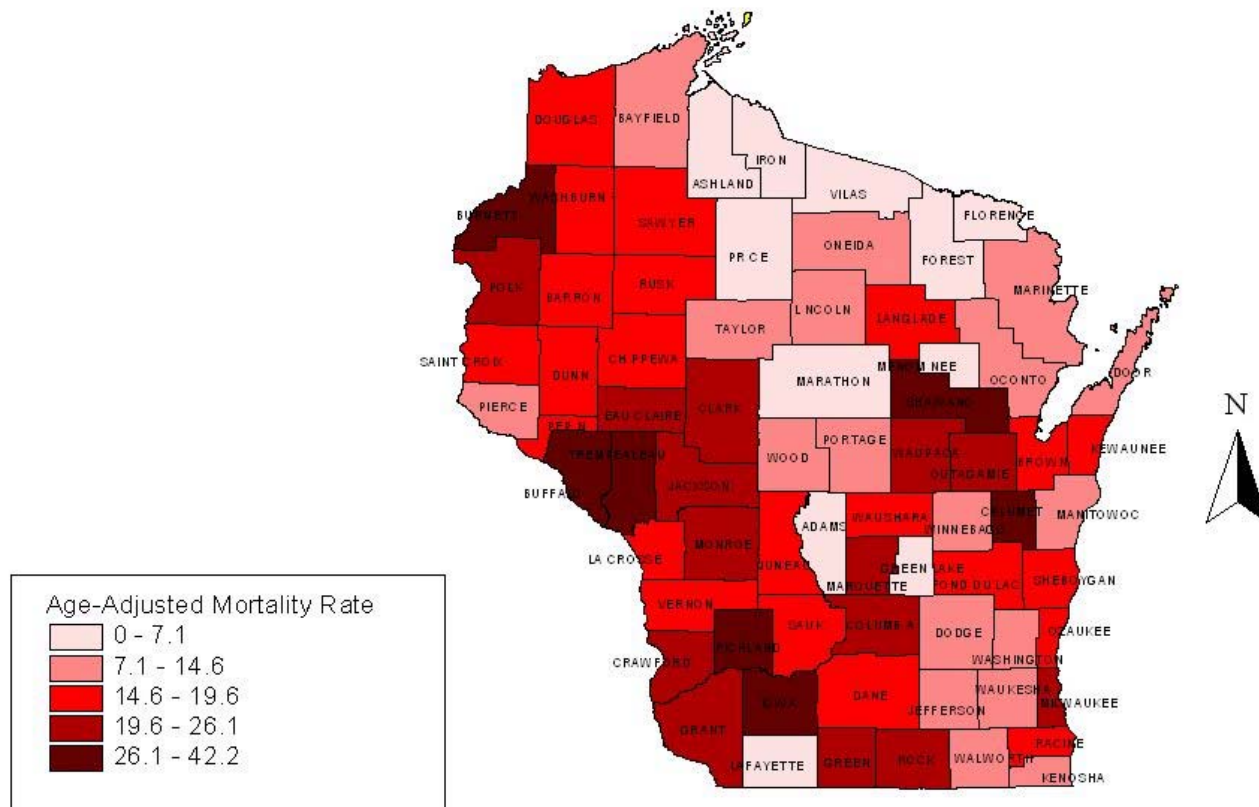
Age-Adjusted Asthma Hospitalization Rates per 10,000
Population by County, Wisconsin, 2000-2002.



Age-Adjusted Asthma Hospital Emergency Department Visit Rates per 10,000 Population by County, Wisconsin, 2002.



WI Asthma Mortality



Asthma Indoor Hazards

Type: Health Effect/Hazard

Integration: Level 2

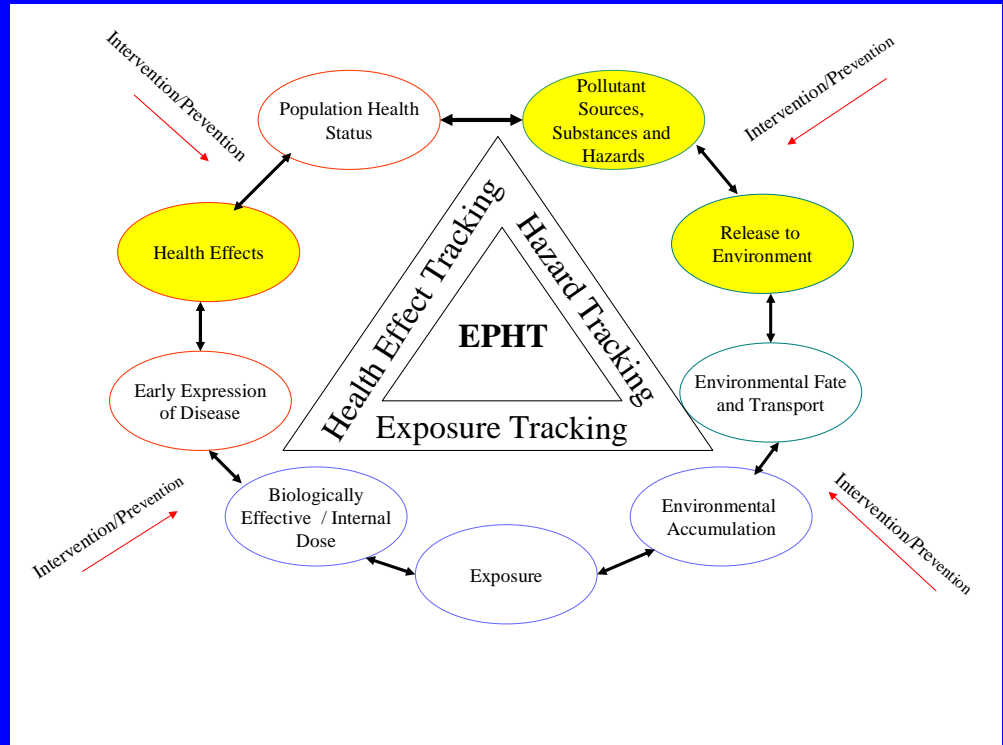
Data Availability: Core

Indicator Measures:

- **Asthma status and ETS exposure**

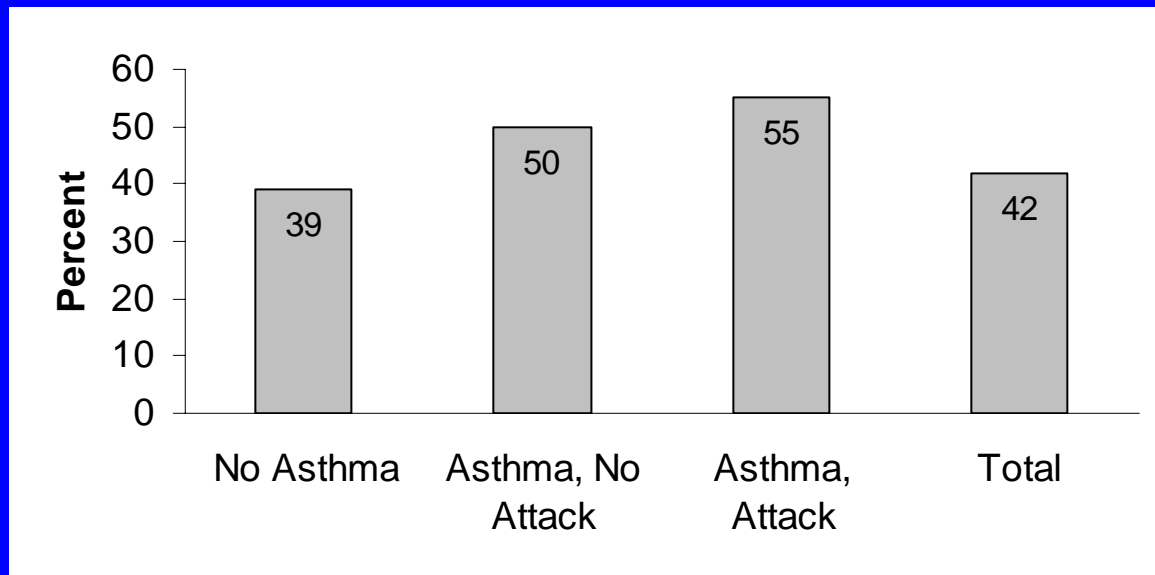
Related Measures:

- Indoor Air Quality
- Outdoor Air Quality



Adapted from: Burke et. al, APHA, 1997.

Percent of Public Middle School Students Currently Living with Someone who Smokes Cigarettes by Asthma Attack Status, Youth Tobacco Survey, Wisconsin, 2003.



Data Source: 2003 Youth Tobacco Survey, Bureau of Chronic Disease Prevention and Health Promotion, Division of Public Health, Wisconsin Department of Health and Family Services

Air, Ambient (Outdoor)

Type:

- Hazard

Integration:

- Level 3

Data Availability:

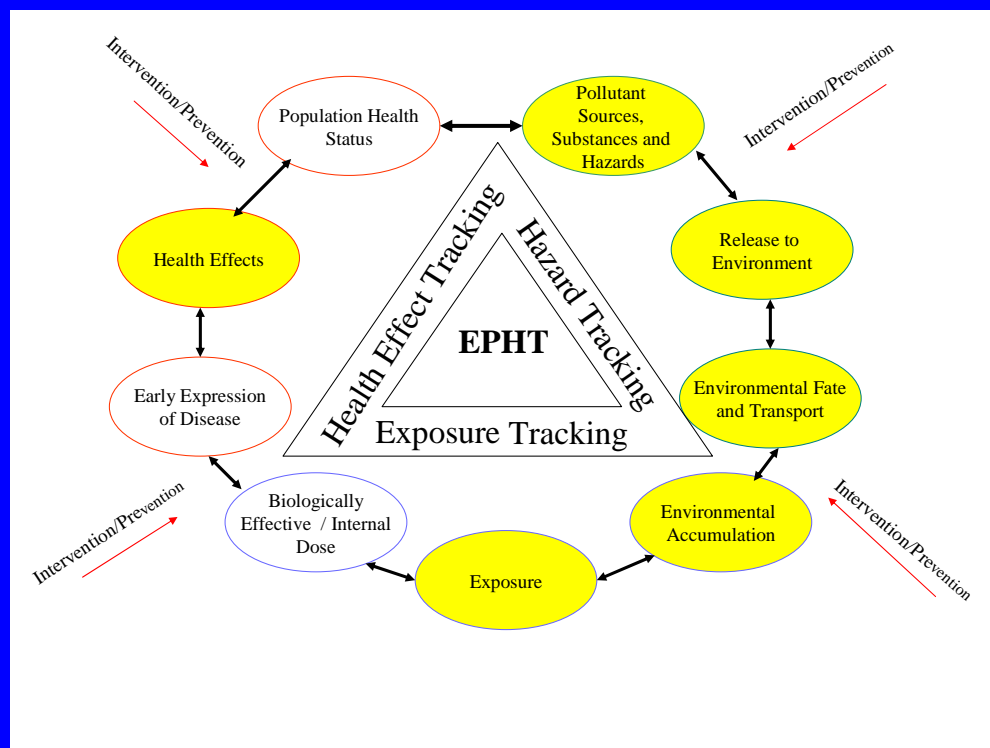
- Developmental

Indicator Measures:

- Cancer risk scores for HAP

Related Measures:

- Cancer



Adapted from: Burke et. al, APHA, 1997.

Integrated Indicator Example: Cancer Risk from HAPS

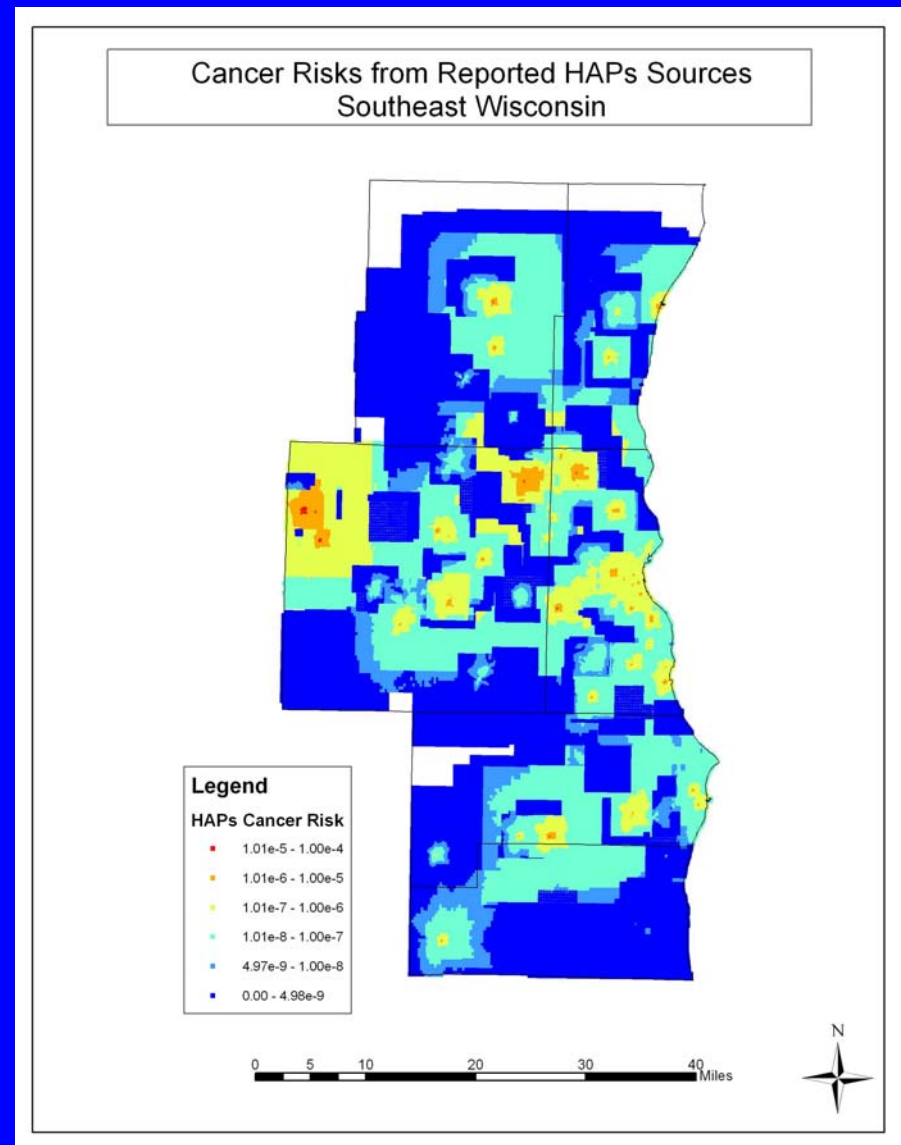
Combines information on:

- 1) Source Identification
- 2) Hazard distribution
- 3) Priority Health Endpoint
- 4) Health Based Guidelines
- 5) Population Exposure Potential

**Indicator can be linked/
Integrated with:**

Distribution of cancer cases
(All cause or site specific)

NOTE: Preliminary Data from WI DNR



Findings(1):The WI framework

- Environmental Health Data is a continuum
- Rather than one indicator, a suite of EPHI in one topic area may paint a more complete picture
- For some topic areas this information exists, for other areas, data not available
- Topic areas identified by CDC/CSTE guidance documents do not coincide with WI Topic areas/priorities

Findings(2) Indicator Development

- Preliminary Indicator development driven by: availability of data
- Indicator development is an ongoing/dynamic process that should reflect the priorities of state health department
- Indicators can help in developing partners within division as well as across state agencies and programs
- Largest gaps in priority topic areas: indoor air quality, pesticides and neurodevelopment outcomes

Findings(3): CDC/CSTE Framework

- CSTE framework is a useful base with limitations
- does not meet all of the environmental health priorities of the state
- Overlap between indicator topics makes organization a challenge to overcome
- Future indicator initiatives should build to improve existing indicators and to address limitations
- Indicators should move towards increasing levels of integration

Next Steps for WI EPHI Development

- Refine/Finalize current indicator topic areas and lists
- Develop indicator report that presents indicators by topic area.
- Identify, strengths, weaknesses and future directions for each indicator topic area